



Received 5/4/87

J.J.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

John J. Trela, Ph.D., Acting Director
401 East State St.
CN 028
Trenton, N.J. 08625
609 - 633 - 1408

Johnathan Josephs
USEPA
26 Federal Plaza
New York, NY 10278

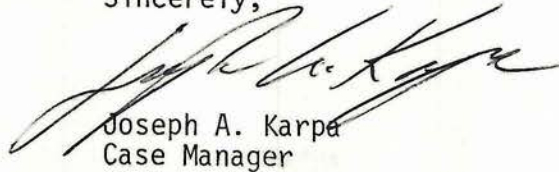
Dear Mr. Josephs:

As per our telephone conversation April 28, 1987, enclosed please find copies of the Givaudan Administrative Consent Orders (ACO's).

Givaudan has submitted to the NJDEP all documents and proposals currently required by the ACO's. This Department looks forward to their continued cooperation.

Should you have any questions regarding the ACO's feel free to contact me at (609) 633-0701.

Sincerely,



Joseph A. Karp
Case Manager

HS127:clw

CC: Dennis Hart, Section Chief
Bureau of Case Management



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

RICHARD T. DEWLING, Ph.D., P.E.

COMMISSIONER

CN 402

TRENTON, N.J. 08625

609-292-2885

IN THE MATTER OF
GIVAUDAN CORPORATION

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:
:

ADMINISTRATIVE
CONSENT ORDER
TCDD

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter the "Department") by Executive Order No. 40B (1983), signed by Governor Thomas H. Kean on June 17, 1983, N.J.S.A. App. A:9-45, N.J.S.A. 13:1D-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq.

FINDINGS

1. Givaudan Corporation (hereinafter "Givaudan") owns and operates an office, manufacturing, packaging, storage, shipment and research complex on 31.43 acres on Delawanna Avenue, Clifton, New Jersey (hereinafter "the Givaudan Plant") which currently has approximately 685 employees and has been assessed by Clifton for 1984 real estate tax purposes at \$9,597,700. The Givaudan Plant includes a chemical manufacturing facility located to the south of Delawanna Avenue, at 125 Delawanna Avenue (Block 73-3, Lot 2) (hereinafter "the Site").

2. Givaudan manufactures a variety of aromatic chemicals at the Site and, until on or about April, 1984, manufactured hexachlorophene, an antibacterial agent used in hospitals, at the Site using, as a raw material, 2,4,5-Trichlorophenol (hereinafter "TCP") which was pre-purified. During 1947 and 1948, Givaudan also manufactured TCP at the Site.

3. On June 3, 1983, Givaudan agreed, at the request of the Department, to conduct a sampling program designed to ascertain the presence or absence of 2,3,7,8-Tetrachlorodibenzo- p-dioxin (hereinafter "TCDD") in or on the soils, waters, equipment and/or structures at the Site.

4. Between June 12 and 17, 1983 Givaudan conducted the sampling program described in paragraph 3, under the supervision of the Department.

5. On June 17, 1983, when the results of analyses of the 22 samples taken during the sampling program described in paragraph 3 became known to Givaudan, Givaudan reported to the Department that the analyses of 11 of 22 samples taken indicated the presence of TCDD in detectable quantities. Of

those 15 samples, 6 showed concentrations of less than 1 ppb, 8 showed concentrations of between 1 ppb and 7 ppb, and one showed a TCDD concentration in excess of 7 ppb. All samples whose analysis indicated the presence of TCDD in concentrations over 1.0 ppb were taken in the area of the Site where hexachlorophene had been manufactured (hereinafter, the "Contaminated Process Area").

6. On June 17, 1983, the Governor issued Executive Order No. 40B, extending the coverage of Executive Order No. 40 to the Site, and the Department issued Administrative Order No. EO 40B-1 (hereinafter, "the Administrative Order"), which directed, among other things, (a) that the area where TCDD contamination in concentrations equal to or in excess of 1.0 ppb had been found to be secured and covered with a tarpaulin, (b) that hexachlorophene manufacturing temporarily cease, (c) that there be no movement of waste materials or hexachlorophene from the Site without the permission of the Department, (d) that additional samples be taken on and off the Site to determine the presence or absence of TCDD contamination, (e) that demolition and construction operations on the Site temporarily cease and (f) that Givaudan supply the Commissioner of Health with certain information so that an appropriate health screening of Givaudan's employees could be conducted.

7. On June 18, 1983, a Field Investigation Team of the United States Environmental Protection Agency (hereinafter "EPA") conducted a sampling program in the area surrounding the Site. No TCDD was detected in any of the samples taken during this sampling program.

8. On June 18 and 25, 1983, Givaudan, under the supervision of the Department, conducted TCDD sampling at the Site. Of the 41 samples taken, 25 showed TCDD contamination in detectable concentrations. Of those 25 samples, 13 showed TCDD concentrations of less than 1 ppb, 11 showed TCDD concentrations of between 1 ppb and 7 ppb, and only 1 sample had TCDD present in excess of 7 ppb.

9. On July 9, 1983, Givaudan, under the supervision of the Department, conducted a TCDD sampling program including sweep and wipe sampling of the interiors of buildings on portions of the Site where hexachlorophene or TCP were being or had been manufactured. Of the 31 samples analyzed, TCDD was present in detectable concentrations in 20 samples. Of those 20 samples, 9 chip samples showed TCDD concentrations of less than 1 ppb, 4 showed TCDD concentrations of between 1 ppb and 7 ppb, one chip sample had TCDD present in excess of 7 ppb (in Building 54 where TCP is believed to have been manufactured over 35 years ago), and 6 wipe samples showed TCDD concentrations of between 1 and 7 nanograms per square foot.

10. Between July 1 and September 30, 1983, the Department of Health conducted health screenings of Givaudan's employees and found no indications of adverse health effects from any exposure those employees might have had to TCDD contamination.

11. On July 26, 1983, Givaudan provided the Department with detailed information regarding (a) the history of chemical production processes at the Site, including the production of TCP and hexachlorophene, (b) the history of operations at the Site, including by predecessor owners or operators, (c) a summary of the solid and hazardous waste and waste water disposal practices and

facilities of Givaudan, (d) the identification of all suppliers of TCP ever used or stored at the Site, (e) a summary of analytical tests performed to determine the presence or absence of TCDD contamination in TCP produced at the facility or purchased from other sources, (f) a summary of analytical testing for TCDD contamination in hexachlorophene produced by Givaudan, and (g) a summary of demolition activities which had occurred at the Site, including a description of activities formerly conducted in demolished buildings and related information.

12. On August 5, 1983, the Department requested Givaudan to submit an occupational hygiene plan to the Department of Health to prevent or minimize TCDD emissions from the hexachlorophene process buildings and on August 15, 1983, Givaudan submitted such a plan to the Department of Health.

13. On August 11, 1983, Givaudan, under the supervision of the Department, resampled Buildings 58, 59 and 60 for TCDD contamination. All samples analyzed had less than 1 ppb of TCDD.

14. On August 18, 1983, Givaudan was authorized by the Department to resume hexachlorophene production under certain conditions and Givaudan resumed hexachlorophene production in accordance with those conditions.

15. On September 8, 1983, EPA conducted additional off-site perimeter sampling for TCDD contamination. No TCDD contamination was detected.

16. On September 12, 1983, Givaudan, with the approval of the Department, conducted (a) a biased, systematic sampling program in the area of the Site around the storm water lagoon, and (b) a random sampling program around the remainder of the Site. The purpose of the random sampling program was to divide the areas of the Site other than the Contaminated Process Area into non-process areas which were to be considered contaminated by TCDD (hereinafter the "Contaminated Non-Process Area") and process and non-process areas which were to be considered not contaminated by TCDD (hereinafter the "Non-Contaminated Area").

17. On September 19, October 17 and December 1, 1983, Givaudan, under the supervision of the Department, conducted a resampling program for TCDD contamination in Buildings 58, 59 and 60. All samples analyzed had less than 1 ppb of TCDD.

18. On March 16, 1984, Givaudan submitted to the Department a proposed "TCDD Remedial Action Plan", prepared by Environmental Resources Management, Inc. (hereinafter "ERM") detailing measures Givaudan proposed to take to prevent human and environmental exposure to on-Site soils contaminated with TCDD in the Contaminated Process Area and the Contaminated Non-Process Area.

19. On April 16, 1984, Givaudan and the Department met to discuss Givaudan's "TCDD Remedial Action Plan" and Givaudan requested relief from the Administrative Order so that construction could begin on a modern, environmentally sound chemical process sewer system at the Site. On May 1, 1984, the Department submitted written comments to Givaudan on its proposed "TCDD Remedial Action Plan".

20. On May 1, 1984, the Department approved Givaudan's recommendation of a phased approach to conducting an investigation of the Site for TCDD contamination in which Phase I would address the Contaminated Process Area and Phase II would address the Contaminated Non-Process Area.

21. On May 31, 1984, Givaudan submitted to the Department a revised "Site Investigation Plan" in response to the Department's comments on Givaudan's "TCDD Remedial Action Plan". Included in Givaudan's "Site Investigation Plan" was a detailed plan for the taking of samples to determine the presence or absence of TCDD along the route of the planned chemical process sewer, located entirely outside the Contaminated Process and Contaminated Non-Process Areas.

22. On or about June 29, 1984, the Department approved those portions of the "Site Investigation Plan" which contained a plan for sampling to determine the presence or absence of TCDD (a) along the route of the planned chemical process sewer, all of which was outside the Contaminated Process and Contaminated Non-Process Areas, and (b) in the Contaminated Process and Contaminated Non-Process Areas.

23. Between July 17 and 30, 1984, the sampling program described in the preceding paragraph was executed under the supervision of the Department. At the request of the Department, split samples were taken and analyzed, at Givaudan's expense, at a separate, Department-approved laboratory to assure the accuracy of the sampling results. No TCDD contamination was detected in the samples taken along the route of the planned chemical process sewer. Of the 41 samples taken in the Contaminated Process Area, all but 1 sample had less than 1 ppb of TCDD contamination. The remaining sample had less than 6 ppb of TCDD contamination. Of the 83 samples taken in the Contaminated Non-Process Area, all but 10 had less than 7 ppb of TCDD contamination. At the request of the Department, Givaudan took 3 additional samples at the site of a filled-in former trench which was visible in an aerial photograph taken in 1950. No TCDD contamination was detected.

24. On August 17, 1984, the Department granted Givaudan permission, subject to certain conditions, to construct the new planned chemical process sewer.

25. On September 24, 1984, Givaudan requested that the Department grant relief from the Administrative Order so that Givaudan could initiate certain specific construction activities outside the Contaminated Process and Contaminated Non-Process Areas, including (a) removal of a number of storage tanks, (b) construction of a 14-foot diameter concrete pad, and (c) construction of a gravel roadway. On December 5, 1984, the Department granted permission to Givaudan to proceed with removal of the storage tanks and construction of the 14-foot diameter concrete pad, but required Givaudan to conduct additional sampling along the route of the proposed roadway before commencing construction.

26. On January 12, 1985, Givaudan requested relief from the Department from the Administrative Order so that certain activities could be initiated and the entrance to the Site from DeWanna Avenue could be secured by a security fence constructed at the entrance. On January 16, 1985, the Department granted Givaudan permission to proceed with the construction at the entrance to the Site.

27. On February 8, 1985, Givaudan requested relief from the Department from the Administrative Order so that additional construction projects outside the Contaminated Process and Contaminated Non-Process Areas could be commenced, including (a) demolition of two buildings located at the north end of the Site, and (b) construction of footings for a series of overhead pipe supports designed to service the renovated Site.

28. On May 17, 1985, the Department granted Givaudan permission for the construction of footings for a series of overhead pipe supports designed to service the renovated Site and approved Givaudan's proposed sampling plan to determine the presence or absence of TCDD contamination in buildings throughout the Non-Contaminated Area. The Department agreed that the Site is released from the restrictions of the Administrative Order with the exceptions of (a) the Contaminated Process Area and the Contaminated Non-Process Area, and (b) buildings located in the Non-Contaminated Area, which will be released from the restrictions of the Administrative Order upon successful completion of the sampling program and the finding that there has been no migration of TCDD contamination outside the Contaminated Process and Non-Process Areas.

29. On June 15, 1985, Givaudan, with the approval and under the supervision of the Department, conducted a chip sampling program at and around Building Nos. 44, 46/47, 51, 68, 68A and the Power Station Wall at the Site to determine whether there had been any migration of TCDD outside the defined boundaries of the Contaminated Process and Non-Process Areas.

30. During the course of the TCDD sampling program conducted by Givaudan and EPA through July 30, 1985, a total of 402 samples were analyzed for TCDD contamination. All samples analyzed as having TCDD contamination in concentrations of 1 ppb or more were located in the Contaminated Process or Contaminated Non-Process Areas. 26 samples were taken and analyzed by EPA in the area surrounding the Site, all of which were analyzed as containing no TCDD contamination in concentrations of 1 ppb or more. 329 samples were taken and analyzed by Givaudan outside the buildings located on the Site, 255 of which were analyzed as containing no TCDD contamination in concentrations of 1 ppb or more, 51 of which were analyzed as having TCDD contamination in concentrations between 1 ppb and 7 ppb, and 23 of which were analyzed as having TCDD contamination in excess of 7 ppb. 47 samples were taken and analyzed at various locations inside the buildings located on the Site, 6 of which were analyzed as having TCDD contamination in concentrations of 1 nanogram per square foot or more (none of which were analyzed as having TCDD contamination in concentrations in excess of 7 nanograms per square foot) and 41 of which were analyzed as having no TCDD contamination in concentrations of 1 nanogram per square foot or less.

31. Pursuant to New Jersey Pollutant Discharge Elimination System Permit No. NJ-0099414, effective October 1, 1982, Givaudan has discharged industrial waste water into the facilities of the Passaic Valley Sewerage Authority and has analyzed that waste water discharge for TCDD contamination on a monthly basis at a detection level of or below 1 ppb. No TCDD contamination has been detected in any of the industrial waste water discharge from the Site.

32. As a result of the investigation conducted by Givaudan under the supervision of the Department, in conjunction with EPA and the Department of Health, to determine the location and extent of TCDD contamination and the effect, if any, upon employees of Givaudan and other persons of possible exposure to that contamination, (a) the location and extent of TCDD contamination in the Contaminated Process Area has been delineated, (b) the delineation of TCDD contamination in the Contaminated Non-Process Area remains to be completed, (c) the Non-Contaminated Areas have been determined to have less than 1 ppb of TCDD contamination, (d) at this time there is no evidence that TCDD contamination has migrated off the Site, and (e) at this time there is no evidence that Givaudan employees or other persons have suffered adverse health effects from exposure to the TCDD contamination found on the Site.

33. Based on current available literature, scientists from the Center for Environmental Health of the Centers for Disease Control of the United States Public Health Service (hereinafter, "CDC") and from the United States Department of Agriculture have concluded that: (a) 1 ppb of TCDD in residential soil is a reasonable level at which to begin consideration of action to limit human exposure to contaminated soil; (b) environmental situations may vary widely, and whether a particular level of TCDD contamination in soil should give rise to concern has to be evaluated on a case-by-case basis.

34. Since the level of human exposure can be expected to be lower in non-residential areas and since other measures may be employed to restrict access and human exposure thereby controlled, the CDC and the Department have determined: (a) that soil in industrial areas contaminated with concentrations of 7 ppb or greater of TCDD should be removed and properly disposed unless removal of contaminated soil is not feasible; and (b) that when soil contaminated with concentrations of less than 7 ppb, but greater than 1 ppb, are to remain at the site, the area shall be capped, a regular monitoring program implemented, and permanent land use controls imposed.

35. Concurrently with the issuance of this Administrative Consent Order, the Department has also issued, with the consent of Givaudan, another administrative consent order, entitled "In the Matter of Givaudan Corporation - Administrative Consent Order Ground Water" (hereinafter, the "Ground Water Consent Order"), covering the investigation, delineation and remediation of ground water contamination, if any, at and/or originating from the Site.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED AND AGREED THAT:

I.

Physical Condition of the Site

36. Givaudan shall continue to maintain all areas of the Site where analytical results have indicated the presence of TCDD contamination in concentrations of 1 ppb or more in a capped and secured condition, with public access thereto restricted. All such areas shall be covered by a permeable ground cover

installed by a contractor approved by representatives of the Department and EPA in such manner and location as may be directed by those representatives.

37. Givaudan shall not engage in any demolition, excavation, movement or disturbance of soil, or placing, movement or removal of construction materials or construction equipment in the Contaminated Process and Non-Process Areas without prior written permission from the Department.

II

Delineation of TCDD Contamination In the Contaminated Non-Process Area

38. Within thirty (30) days after the effective date of this Administrative Consent Order, Givaudan shall submit to the Department for its review and approval, a detailed draft TCDD field sampling plan (hereinafter, the "FSP") to complete the delineation of TCDD contamination in the Contaminated Non-Process Area.

39. Within fifteen (15) days after receipt of the Department's written comments on the draft FSP, Givaudan shall modify the draft FSP as necessary to conform to the Department's comments and shall submit the modified FSP to the Department for its approval.

40. Within ninety (90) days after receiving the Department's written approval of the modified FSP, Givaudan shall conduct and complete the work described in the modified FSP and shall submit to the Department for its review and approval, a draft TCDD investigation report (hereinafter, the "Investigation Report") detailing the results, recommendations and all analytical data, developed in implementing the FSP.

41. Within fifteen (15) days after receipt of the Department's written comments on the Investigation Report, Givaudan shall modify the Investigation Report as necessary to conform to the Department's comments and shall submit the modified Investigation Report to the Department for its approval, or shall initiate such additional investigations as may be found necessary by the Department, in accordance with a schedule to be established by the Department.

III.

Feasibility Study of TCDD Contamination in the Contaminated Process and Contaminated Non-Process Areas

42. Within thirty (30) days after the approval by the Department of the Investigation Report, Givaudan shall submit to the Department for its review and approval, a draft work plan to conduct a feasibility study of remedial action alternatives for TCDD contamination in the Contaminated Process and Contaminated Non-Process Areas (hereinafter, the "TCDD Work Plan", based on the scope of work set forth in Appendix A, which is attached hereto and made a part hereof).

43. Within fifteen (15) days after receipt of the Department's written comments on the draft TCDD Work Plan, Givaudan shall modify the draft TCDD Work Plan as necessary to conform to the Department's comments and shall submit the modified TCDD Work Plan to the Department for its approval.

44. Within seventy-five (75) days after receipt of the Department's written approval of the modified TCDD Work Plan, Givaudan shall conduct and complete the work described in the TCDD Work Plan and shall prepare and submit to the Department for its review and approval a draft TCDD feasibility study (hereinafter, the "Feasibility Study").

45. Within thirty (30) days after receipt of the Department's written comments on the draft Feasibility Study, Givaudan shall modify the draft Feasibility Study as necessary to conform to the Department's comments and shall submit the modified Feasibility Study to the Department for public hearing and approval.

46. At such time and place as the Department may establish, and upon reasonable notice to Givaudan, the Department shall conduct a public hearing with respect to the Feasibility Study. After taking into consideration any comments received at the public hearing, the Department, after consultation with Givaudan, shall select a remedial action alternative for the Site from among the remedial action alternatives described in the Feasibility Study.

IV

The Remedial Action Plan For the Contaminated Process and Contaminated Non-Process Areas

47. Within sixty (60) days after receipt of the Department's written selection of a remedial action alternative for the Site, Givaudan shall submit to the Department for its review and approval, a detailed draft TCDD remedial action plan (hereinafter, the "Remedial Action Plan"), including a complete cost estimate for the work to be performed and a detailed schedule to implement the selected alternative.

48. Within thirty (30) days after receipt of the Department's written comments on the draft Remedial Action Plan, Givaudan shall modify the draft Remedial Action Plan as necessary to conform to the Department's comments and shall submit the modified Remedial Action Plan to the Department for its approval.

49. Upon receipt of the Department's written approval of the Remedial Action Plan, Givaudan shall conduct and complete the work described in the Remedial Action Plan in accordance with the approved schedule contained therein.

50. If the results of the Remedial Action Plan indicate that TCDD is migrating into the environment at concentration levels which constitute a significant risk to public health or the environment (a condition which is not now believed to be the case), then within ten (10) days after the discovery of such condition, Givaudan shall submit to the Department for its review and approval, a draft amendment to the Remedial Action Plan (hereinafter the

"Remedial Action Plan Amendment"), including a complete cost estimate and an implementation schedule to correct the adverse impacts of the migration and to prevent the migration from reoccurring in the future.

51. Within ten (10) days after receipt of the Department's written comments on the draft Remedial Action Plan Amendment, Givaudan shall modify the draft Remedial Action Plan Amendment as necessary to conform to the Department's comments and shall submit the modified Remedial Action Plan Amendment to the Department for approval.

52. Upon receipt of the Department's written approval of the Remedial Action Plan Amendment, Givaudan shall conduct and complete the work described in the Remedial Action Plan Amendment in accordance with the approved schedule contained therein.

53. Prior to the preparation and implementation of any such Remedial Action Plan Amendment, and subject to the approval of the Department, Givaudan shall take such interim measures as are necessary to control or minimize the migration of TCDD contamination into the environment.

V

Project Coordination

54. All documents required by the terms of this Administrative Consent Order to be submitted by Givaudan to the Department, and all comments or approvals to be provided by the Department to Givaudan pursuant to the terms of this Administrative Consent Order, as well as all non-routine correspondence, including correspondence relating to force majeure issues, shall be sent by certified mail, return receipt requested, or shall be hand delivered and duly receipted by the recipient.

55. All correspondence, reports, work plans and other writings submitted to the Department by Givaudan with respect to this Administrative Consent Order shall be sent, unless otherwise instructed by the Department, to:

Karen Jentis, Chief
Bureau of Case Management
Division of Hazardous Waste Management
CN 028
Trenton, New Jersey 08625

56. Written communications from the Department to Givaudan with respect to this Administrative Consent Order shall be sent to:

Dr. H. A. Brandman
Vice-President-Manufacturing
Givaudan Corporation
105 Delaware Avenue
Clifton, New Jersey 07014

A copy of all such written communications shall be sent to:

William H. Hyatt, Jr., Esq.
Pitney, Hardin, Kipp & Szuch
163 Madison Avenue
CN 1945
Morristown, New Jersey 07960-1945

57. Within seven (7) days after the effective date of this Administrative Consent Order, Givaudan shall provide the Department with the name, title, address and telephone number of its designated Facility Coordinator, who shall be responsible for oversight on behalf of Givaudan of the implementation of this Administrative Consent Order, including all activities required herein. Givaudan shall have the right to change its Facility Coordinator at any time, provided Givaudan shall notify the Department in writing at least five (5) working days prior to any such change. If such advance notice is not feasible, notice shall be given to the Department by the best means and as far in advance as possible under the circumstances.

58. Givaudan shall allow the Department and its authorized representatives access to the Site at all times for the purpose of monitoring compliance with the terms of this Administrative Consent Order.

VI

Financial Requirements

A. Insurance

59. Givaudan shall use its best efforts to secure and maintain in force during the pendency of this Administrative Consent Order, a comprehensive general liability insurance policy with coverage as broad as the standard coverage form currently in use in the State of New Jersey which shall not be circumscribed by the endorsements limiting the breadth of coverage. The policy shall include an endorsement (broad form) for contractual liability, an endorsement for completed operations liability, an endorsement of Broad Form Property Damage Coverage and an endorsement for independent contractors coverage. Givaudan shall use its best efforts to have its underwriter(s) add and maintain the State of New Jersey as an additional insured through completion of the Remedial Action Plan to be implemented pursuant to this Administrative Consent Order. The policy shall be specifically endorsed to eliminate any exclusions for explosion, collapse and underground hazards (x,c,u). Limits of liability shall be not less than Six Million Dollars (\$6,000,000.00) per occurrence and annual aggregate for bodily injury and for property damage combined.

60. If Givaudan is able to obtain the insurance policy described in paragraph 59 above, as soon thereafter as that insurance policy described in the preceding paragraph can be obtained by Givaudan, Givaudan shall provide the Department with a current certificate of insurance certifying coverage. The certificate shall contain a provision that the insurance shall not be cancelled for any reason except after thirty (30) days written notice to the Department.

61. If Givaudan is not able to obtain or maintain the insurance policy described in paragraph 59 above, Givaudan shall indemnify the State to the same extent that the insurance coverage would have provided the State as an additional insured.

B. Financial Assurance

62. Within thirty (30) days after the effective date of this Administrative Consent Order, Givaudan shall obtain and provide to the Department an irrevocable, conditional letter of credit in the amount of One Million Dollars (\$1,000,000) (hereinafter, the "Letter of Credit") to secure performance of all its obligations under this Administrative Consent Order and under the Ground Water Consent Order. The Letter of Credit shall be issued by a New Jersey bank or financial institution, or by such other bank or financial institution as shall be approved by the Department. Subject to the provisions of paragraph 64 and 65 of this Administrative Consent Order, Givaudan shall maintain the Letter of Credit continuously in full force and effect until the requirements of this Administrative Consent Order and the Ground Water Consent Order have been completed.

63. The amount of the Letter of Credit has been determined by estimating the costs of implementing the requirements of this Administrative Consent Order and the requirements of the Ground Water Consent Order.

64. The Letter of Credit shall be conditioned that in the event the Department determines that Givaudan has failed to perform any of its obligations under this Administrative Consent Order or the Ground Water Consent Order, the Department may draw on the Letter of Credit; provided, however, that before any such draw can be made, the Department shall notify Givaudan in writing of the obligation(s) with which Givaudan has failed to comply, and Givaudan shall have a reasonable time, not to exceed thirty (30) days, to perform any such obligation(s).

65. If the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the Ground Water Consent Order at any time exceeds the amount of the Letter of Credit, Givaudan shall promptly cause the amount of the Letter of Credit to be increased so that the amount of the Letter of Credit is equal to the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the Ground Water Consent Order.

66. At any time during the performance of its obligations hereunder, Givaudan may apply to the Department for approval to reduce the amount of the Letter of Credit to reflect the remaining estimated combined costs of performing its obligations under this Administrative Consent Order and the Ground Water Consent Order, or to substitute other financial assurance in a form and manner acceptable to the Department.

67. Givaudan shall increase the amount of the Letter of Credit, or other approved financial assurance, within fifteen (15) days of receipt of a written notice from the Department, to reflect increases in the estimated cost of implementing the approved remedial action alternative.

C. Reimbursement of Costs.

68. Within thirty (30) days after the effective date of this Administrative Consent Order, Givaudan shall issue a certified check to the Department in the amount of Thirteen Thousand One Hundred Sixty-Six Dollars and Thirty-Three Cents (\$13,166.33). Payment by Givaudan of this sum shall represent reimbursement in full and complete satisfaction of any claims the Department may have against Givaudan for expenses incurred up until the effective date of this Administrative Consent Order as a result of the Department's investigation and remediation of TCDD contamination at the Givaudan Plant or the Site.

69. Subject to the limitations and reservations of rights contained in this paragraph, Givaudan agrees to reimburse the Department for the Department's reasonable oversight costs incurred in connection with this Administrative Consent Order and the Ground Water Consent Order, by submitting to the Department, within 30 days after receipt by Givaudan of an itemized accounting of such costs, a certified check, drawn to the order of the Treasurer, State of New Jersey, in the full amount of such costs. Givaudan agrees to reimburse the Department for all such oversight costs up to \$100,000.00. The Department reserves its right to seek recovery from Givaudan of such oversight costs in excess of \$100,000 and Givaudan reserves its right to contest its obligation to reimburse the Department for any such oversight costs in excess of \$100,000.00.

VII

Force Majeure

70. If any event occurs which Givaudan believes will or may cause delay in the achievement of any deadline prescribed by this Administrative Consent Order, Givaudan shall notify the Department in writing within seven (7) days of the delay or anticipated delay, as appropriate, referencing this paragraph and describing the anticipated length of the delay, the precise cause or causes of the delay, any measures taken or to be taken to minimize the delay and the time required to take any such measures to minimize the delay. Givaudan shall adopt all necessary measures to prevent or minimize any such delay. Givaudan's failure to comply with the notice requirements of this paragraph shall render this force majeure provision void as to the particular incident involved.

71. If the Department finds that any delay or anticipated delay has been or will be caused by fire, flood, riot, strike or other circumstances reasonably beyond the control of Givaudan, the Department shall extend the time for performance hereunder for a period no longer than the delay resulting from such circumstances. If, however, the event causing the delay is found by the Department not to be beyond the control of Givaudan, failure to comply with the provisions of this Administrative Consent Order shall not be excused as provided herein and shall constitute a breach of the requirements of this Administrative Consent Order. The burden of proving that any delay is caused by circumstances beyond the control of Givaudan and the length of any such delay attributable to those circumstances shall rest with Givaudan. Increases in cost or expenses incurred by Givaudan in fulfilling the requirements of this Administrative Consent Order shall not be a basis for an extension of time. A delay by Givaudan

in completing an interim requirement of this Administrative Consent Order shall not automatically extend the time for performance by Givaudan of the remaining requirements of this Administrative Consent Order.

VIII Reservation of Rights

72. This Administrative Consent Order shall be fully enforceable in the New Jersey Superior Court upon the filing of a summary action for compliance pursuant to Executive Order No. 40 (1983) signed by Governor Thomas H. Kean on June 2, 1983, N.J.S.A. App. A:9-45, N.J.S.A. 13:1D-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq.

73. This Administrative Consent Order may be enforced in the same manner as an Administrative Order issued by the Department pursuant to these same statutory authorities.

74. Nothing in this Administrative Consent Order shall constitute a waiver of any statutory right of the Department pertaining to any of the laws of the State of New Jersey, should the Department determine that additional remedial actions are necessary to protect the public health or the environment.

75. In consenting to this Administrative Consent Order and/or by complying with its provisions and requirements, whether directly or through an agent or contractor, Givaudan neither admits nor denies the Findings made herein and admits no liability or responsibility to the Department or to any other party, entity or person. This Administrative Consent Order shall not constitute or be used as evidence of any admission of law or fact against Givaudan.

IX General Provisions

76. This Administrative Consent Order shall supersede the Administrative Order.

77. The provisions of this Administrative Consent Order shall be binding on Givaudan, its principals, agents, employees, successors, assigns, tenants and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.

78. No obligations imposed by this Administrative Consent Order (with the exception of paragraphs 68 and 69) are intended to constitute a debt, claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations imposed by this Administrative Consent Order shall constitute continuing regulatory obligations imposed pursuant to the police powers of the State of New Jersey, intended to protect the public health and the environment.

79. Compliance with the terms of this Administrative Consent Order shall not excuse Givaudan from compliance with any applicable federal and state permits, statutes and regulations while carrying out the obligations imposed by this Administrative Consent Order.

80. Givaudan shall make available to the Department all data and information, including raw sampling and monitoring data, generated pursuant to this Administrative Consent Order.

81. Givaudan shall not construe any informal advice, guidance, suggestions, or comments by the Department, or by persons acting on behalf of the Department, as relieving Givaudan of its obligation to obtain written approvals as may be required herein, unless such advice, guidance, suggestions, or comments by the Department shall be submitted in writing to Givaudan pursuant to paragraph 54, except for minor modifications during field activities, including minor scheduling adjustments, which Givaudan shall confirm in writing to the Department.

82. No modification or waiver of this Administrative Consent Order shall be valid except by written amendment to this Administrative Consent Order duly executed by Givaudan and the Department.

83. When this Administrative Consent Order becomes effective, Givaudan waives its right to a hearing on the matters contained herein, pursuant to N.J.S.A. 52:14B-1 et seq. and N.J.S.A. 58:10A-1 et seq.

84. The requirements of this Administrative Consent Order shall be deemed satisfied upon the receipt by Givaudan of written notice from the Department that Givaudan has demonstrated, to the satisfaction of the Department, that all the terms of this Administrative Consent Order have been completed.

85. This Administrative Consent Order shall take effect upon the signature of both parties.

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Richard T. Dewling
Commissioner

Approved as to Form

Date 2/25/87

GIVAUDAN CORPORATION

NAME Eric Brandman
TITLE V.P. - Operations
NAME Mike
TITLE SR. VICE PRESIDENT

3/5/87

DATE

Witness:

Michael E. Cotroneo

3/5/87

DATE

Witness:

APPENDIX A

FEASIBILITY STUDY

A. Objectives

1. identify and evaluate all potentially viable remedial action alternatives for the TCDD contamination on and/or emanating from the Site
2. recommend the remedial action alternative best suited to remove all concentrations of TCDD on and/or emanating from the Site so that the levels remaining following removal do not exceed 7 parts per billion, provided, however, that the recommended remedial action alternative shall ensure that the potential for human exposure to, or migration into the environment of TCDD at levels of 1 part per billion, or greater, is eliminated to the maximum extent technically practicable;
3. The Feasibility Study shall propose remedial action alternatives for remediation of the TCDD contamination located in the Contaminated Process and Contaminated Non-Process Areas. For material contaminated with TCDD in concentrations of less than 7 ppb, the remedial action alternatives may include containment of the contaminated material in place or elsewhere on the Site, provided that any such proposed remedial action alternative (a) precludes the likelihood of significant future exposure to the contaminated material, (b) ensures that erosion will not eventually uncover the contaminated material and (c) ensures that further use of the Site will be monitored to prevent disturbances of the contaminated material which might cause an unacceptable human exposure at a future date. Unless the exception of the following sentence applies, the remedial action alternatives shall provide for the removal from the Site and proper disposal of material contaminated with TCDD in concentrations of 7 ppb or greater. If the Feasibility Study concludes, and the Department agrees, that the removal of material contaminated with TCDD in concentrations of 7 ppb or greater from the Site is not practicable, then the draft Feasibility Study shall recommend the remedial action alternative deemed best suited to contain the TCDD contamination on-Site in such a manner that the potential for human contact with the TCDD contamination or for migration of the TCDD contamination into the environment is and will be eliminated to the maximum extent technically practicable. Furthermore, if the recommended remedial alternative requires concentrations of TCDD greater than 1 ppb to remain on site, then the alternative shall include capping, regular monitoring, and the imposition of permanent land use controls.

B. Identification of Remedial Alternatives

1. develop alternatives to incorporate remedial technologies, response objectives and criteria, and other appropriate considerations into a comprehensive, site-specific approach
2. consider all appropriate remedial alternatives including but not limited to on-site remediation, containment, and no-action options
3. screen all potentially viable remedial action alternatives to narrow the list of potential alternatives for further detailed analysis, according to the following:
 - a. environmental and public health impacts
 - b. engineering feasibility and reliability
 - c. cost, including operation and maintenance costs
4. evaluate the limited number of alternatives that remain after the initial screening according to the following:
 - a. describe appropriate treatment and disposal technologies, as well as any permanent facilities required
 - b. specify engineering considerations required to implement the alternative (e.g., treatability study, pilot treatment facility, additional studies needed to proceed with final remedial design)
 - c. describe environmental and public health impacts and propose methods for mitigating any adverse effects
 - d. operation and maintenance/monitoring requirements of the completed remedy
 - e. off-site disposal needs and transportation plans
 - f. temporary storage requirements
 - g. requirements for health and safety plans during remedial implementation (including both on-site and off-site health and safety considerations)
 - h. describe how the alternative could be phased into individual operable units including how various components of the remedy could be implemented individually, or in groups resulting in a functional phase of the overall remedy
 - i. describe how the alternative could be segmented into areas to allow implementation of differing phases of the alternative

- j. a review, provided by the Department of any off-site storage, treatment or disposal facility to ensure compliance with applicable hazardous waste regulatory requirements
- k. describe which federal, state and local permits would be necessary for each alternative identified and the information necessary for the development of each of the permits
- l. time required for implementation, including interim dates of significance

C. Evaluation of Alternatives

- 1. evaluate and present the alternative remedies identified in Part B above and recommend the most environmentally sound alternative(s)
 - a. develop a health and environmental assessment
 - i. evaluate each alternative considering environmental fate, exposure and associated health and environmental effects
 - ii. analyze mitigating adverse effects, and physical or legal constraints
 - b. develop a detailed cost summary for each remedial action alternative, and for each phase or segment of the alternative
 - i. present the cost as a present-worth cost
 - ii. include total cost of implementing the alternative including the annual operation and maintenance costs of the alternative for the full duration of the alternative
 - c. evaluate each alternative in accordance with the criteria established in Part A above
 - i. apply the evaluation criteria uniformly to each alternative
 - ii. identify a number of remedial alternatives that are comparable
 - iii. identify the most appropriate alternative, given the specific constraints of the project
 - iv. prepare a trade-off matrix that enables identification of now comparable techniques including
 - level of cleanup achievable
 - time to achieve cleanup

- feasibility
 - implementability
 - reliability
 - ability to minimize adverse impacts during action
 - ability to minimize off-site impacts caused by action
 - remoteness of activities
 - useability of ground water
 - useability of surface water
 - useability of site
- d. recommend the alternative that is the most environmentally sound resulting from Sections II. C.l.b. and C.l.c.
- i. prepare rationale for recommending the selected alternative stating the advantages over other alternatives considered
 - ii. a conceptual design of the recommended alternative should be included, providing, as a minimum, the following information:
 - the selected engineering approach with implementation schedule
 - any special implementation requirements
 - applicable design criteria
 - preliminary site layouts
 - estimates of all costs, including operation and maintenance requirements
 - safety plan



State of New Jersey
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 RICHARD T. DEWLING, Ph.D., P.E.
 COMMISSIONER
 CN 402
 TRENTON, N.J. 08625
 609-292-2885

IN THE MATTER OF
 GIVAUDAN CORPORATION

:
 :
 :

ADMINISTRATIVE
 CONSENT ORDER
 GROUND WATER

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter the "Department") by N.J.S.A. 13:1D-1 et seq., by the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., by the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and by the Spill Compensation and Control Act, N.J.S.A. 58:10-23 et seq.

FINDINGS

1. Givaudan Corporation (hereinafter "Givaudan") owns and operates an office, manufacturing, packaging, storage, shipment and research complex on 31.43 acres on Delawanna Avenue, Clifton, New Jersey (hereinafter the "Givaudan Plant") which currently has approximately 685 employees and has been assessed by Clifton for 1984 real estate tax purposes at \$9,597,700. The Givaudan Plant includes a chemical manufacturing facility located to the south of Delawanna Avenue, at 125 Delawanna Avenue (Block 73-3, Lot 2) (hereinafter the "Site").

2. The Site is bordered on the northeast by Delawanna Avenue, on the southwest by New Jersey State Route 3, on the northwest by CONRAIL commuter and freight railroad lines, and on the southeast by a small, medium-density housing community which is located on a bluff overlooking the Site. The Passaic River, which forms the boundary between Passaic and Bergen Counties in the area of the Site, is approximately one-third of a mile to the southeast of the Site and is believed to be tidally influenced in the area of the Site. The Site is located in an area of Clifton which has been industrialized for many years.

3. The Site is believed to have been an active industrial site since approximately 1905. The bulk of the Site was owned by Antoine Cheris prior to its purchase by Givaudan in 1913. The remainder of the Site was purchased by Givaudan in 1926 from National Anode Corporation and in 1931 from Capes-Viscose Corporation.

4. Since approximately 1913, Givaudan has manufactured a variety of aromatic chemicals at the Site.

5. Since approximately 1950, Givaudan has continuously extracted ground water at the Site at the rate of approximately 1 million gallons per week. The extracted water has been utilized for non-contact cooling water and has been discharged to the facilities of the Passaic Valley Sewerage Commission, a publicly owned treatment works.

6. In April, 1985, Givaudan completed installation of a new, state-of-the-art chemical process sewer system with secondary containment. The new system consists of a series of pipes constructed within concrete trenches which serve to contain any potential leaks. Gratings over the trenches permit physical inspection to detect leaks. The new system is designed to prevent the future risk of ground water contamination from leaking chemical sewers.

7. Although the ground water underlying the Site has been sampled for contamination on various occasions in the past, the nature and extent, if any, of ground water contamination underlying the Site and the surrounding area, from the operations of Givaudan or otherwise, remains to be delineated.

8. Past sampling of ground water underlying the Site has disclosed the presence of various contaminants including 1,2-dichloroethane, 1,1,2-trichloroethane, toluene and benzene.

9. Concurrently with the issuance of this Administrative Consent Order, the Department has also issued, with the consent of Givaudan, another administrative consent order, entitled "In the Matter of Givaudan Corporation Administrative Consent Order-TCDD" (hereinafter the "TCDD Consent Order"), covering the investigation, delineation and remediation of 2,3,7,8-Tetrachlorodibenzo-p-dioxin contamination at the Site.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED AND AGREED THAT:

I.

Ground Water Remedial Investigation and Feasibility Study

10. Within sixty (60) days after the effective date of this Administrative Consent Order, Givaudan shall submit to the Department for its review and approval, a detailed draft work plan (hereinafter the "RI Work Plan"), to conduct a ground water remedial investigation (hereinafter "RI") based on the scope of work set forth in Appendix A, Section I, which is attached hereto and made a part hereof.

11. Within fifteen (15) days after receipt of the Department's written comments on the draft RI Work Plan, Givaudan shall modify the draft Work Plan as necessary to conform to the Department's comments and shall submit the modified RI Work Plan to the Department.

12. Within one hundred eighty (180) days after receipt of the Department's written approval of the Work Plan, Givaudan shall conduct and complete the RI and submit a draft ground water investigation report (hereinafter the "Investigation Report") to the Department for its review and approval, provided, however, that the parties agree that Givaudan shall not be required to install any new wells in a known or suspected TCDD contaminated area until the TCDD is removed.

13. Within fifteen (15) days after receipt of the Department's written comments on the draft Investigation Report, Givaudan shall modify the draft Investigation Report as necessary to conform to the Department's comments and shall submit the modified Investigation Report to the Department for its approval, or initiate such additional investigations as may be found necessary by the Department, in accordance with a schedule established by the Department.

14. Within thirty (30) days after the approval by the Department of the Investigation Report, Givaudan shall submit to the Department for its review and approval, a draft work plan to conduct a feasibility study of remedial action alternatives for contamination at and/or emanating from the Site (hereinafter, the "FS Work Plan"), based on the scope of work set forth in Appendix A, Section II, which is attached hereto and made a part of hereof.

15. Within fifteen (15) days after receipt of the Department's written comments on the draft FS Work Plan, Givaudan shall modify the draft FS Work Plan as necessary to conform to the Department's comments and shall submit the modified FS Work Plan to the Department for its approval.

16. Within sixty (60) days after receipt of the Department's written approval of the FS Work Plan, Givaudan shall prepare and submit a draft ground water FS report pursuant to the FS Work Plan, to the Department for review and approval.

17. Within thirty (30) days after receipt of the Department's written comments on the draft FS report, Givaudan shall modify the draft FS report as necessary to conform to the Department's comments and shall submit the modified FS report to the Department for approval.

18. Within sixty (60) days after receipt of the Department's written selection of a ground water remedial action alternative, Givaudan shall submit to the Department for its review and approval, a detailed draft ground water remedial action plan (hereinafter the "Remedial Action Plan"), including a complete cost estimate and an implementation schedule to implement the selected alternative, pursuant to the Work Plan.

19. Within thirty (30) days after receipt of the Department's written comments on the draft Remedial Action Plan, Givaudan shall modify the draft Remedial Action Plan as necessary to conform to the Department's comments and shall submit the modified Remedial Action Plan to the Department for its approval.

20. Upon receipt of the Department's final written approval of the Remedial Action Plan, Givaudan shall implement the Remedial Action Plan in accordance with the approved time schedule.

II
Project Coordination

21. All documents required by the terms of this Administrative Consent Order to be submitted by Givaudan to the Department, and all comments or approvals to be provided by the Department to Givaudan pursuant to the terms of this Administrative Consent Order, as well as all non-routine correspondence, including correspondence relating to force majeure issues, shall be sent by certified mail, return receipt requested, or shall be hand delivered and duly receipted by the recipient.

22. All correspondence, reports, work plans and other writings submitted to the Department by Givaudan with respect to this Administrative Consent Order shall be sent unless otherwise instructed by the Department to:

Karen Jentis, Chief
Bureau of Case Management
Division of Hazardous Waste Management
CN-028
Trenton, New Jersey 08625

23. Written communications from the Department to Givaudan with respect to this Administrative Consent Order shall be sent to:

Dr. H. A. Brandman
Vice-President-Manufacturing
Givaudan Corporation
125 Delawanna Avenue
Clifton, New Jersey 07014

A copy of all such written communications shall be sent to:

William H. Hyatt, Jr., Esq.
Pitney, Hardin, Kipp & Szuch
163 Madison Avenue
CN 1945
Morristown, New Jersey 07960-1945

24. Within seven (7) days after the effective date of this Administrative Consent Order, Givaudan shall provide the Department with the name, title, address and telephone number of its designated Facility Coordinator, who shall be responsible for oversight on behalf of Givaudan of the implementation of this Administrative Consent Order, including all activities required herein. Givaudan shall have the right to change its Facility Coordinator at any time, provided Givaudan shall notify the Department in writing at least five (5) working days prior to any such change. If such advance notice is not possible, notice shall be given to the Department by the best means and as far in advance as possible under the circumstances.

25. Givaudan shall allow the Department and its authorized representatives access to the Site at all times for the purpose of monitoring compliance with the terms of this Administrative Consent Order.

III

Financial Requirements

A. Insurance

26. Givaudan shall use its best efforts to secure and maintain in force during the pendency of this Administrative Consent Order, a comprehensive general liability insurance policy with coverage as broad as the standard coverage form currently in use in the State of New Jersey which shall not be circumscribed by the endorsements limiting the breadth of coverage. The policy shall include an endorsement (broad form) for contractual liability, an endorsement for completed operations liability, an endorsement of Broad Form Property Damage Coverage and an endorsement for independent contractors coverage. Givaudan shall use its best efforts to have its underwriter(s) add and maintain the State of New Jersey as an additional insured through completion of the Remedial Action Plan to be implemented pursuant to this Administrative Consent Order. The policy shall be specifically endorsed to eliminate any exclusions for explosion, collapse and underground hazards (x,c,u). Limits of liability shall be not less than Six Million Dollars (\$6,000,000.00) per occurrence and annual aggregate for bodily injury and for property damage combined.

27. If Givaudan is able to obtain the insurance policy described in paragraph 26 above, as soon thereafter as the insurance policy can be obtained by Givaudan, Givaudan shall provide the Department with a current certificate of insurance certifying coverage. The certificate shall contain a provision that the insurance shall not be cancelled for any reason except after thirty (30) days written notice to the Department.

28. If Givaudan is not able to obtain, or maintain the insurance policy described in paragraph 27 above, Givaudan shall indemnify the State to the same extent that the insurance coverage would have provided the State as an additional insured.

B. Financial Assurance

29. Within thirty (30) days after the effective date of this Administrative Consent Order, Givaudan shall obtain and provide to the Department an irrevocable, conditional letter of credit in the amount of One Million Dollars (\$1,000,000) (hereinafter, the "Letter of Credit") to secure performance of all its obligations under this Administrative Consent Order and under the TCDD Consent Order. The Letter of Credit shall be issued by a New Jersey bank or financial institution or by such other bank or financial institution as shall be approved by the Department. Subject to the provisions of paragraphs 32 and 33 of this Administrative Consent Order, Givaudan shall maintain the Letter of Credit continuously in full force and effect until the requirements of this Administrative Consent Order and the TCDD Consent Order have been completed.

30. The amount of the Letter of Credit has been determined by estimating the cost of implementing the requirements of this Administrative Consent Order and the requirements of the TCDD Consent Order.

31. The Letter of Credit shall be conditioned that in the event the Department determines that Givaudan has failed to perform any of its obligations under this Administrative Consent Order or the TCDD Consent Order, the Department may draw on the Letter of Credit; provided, however, that before any such draw can be made, the Department shall notify Givaudan in writing of the obligation(s) with which Givaudan has failed to comply, and Givaudan shall have a reasonable time, not to exceed thirty (30) days, to perform any such obligation(s).

32. If the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the TCDD Consent Order at any time exceeds the amount of the Letter of Credit, Givaudan shall promptly cause the amount of the Letter of Credit to be increased so that the amount of the Letter of Credit is equal to the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the TCDD Consent Order.

33. If the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the TCDD Consent Order are at any time less than the amount of the Letter of Credit, Givaudan may apply to the Department for permission to reduce the amount of the Letter of Credit so that it is equal to the combined estimated costs of implementing the Remedial Action Plans described in this Administrative Consent Order and the TCDD Consent Order.

34. At any time during the performance of its obligations hereunder, Givaudan may apply to the Department for approval to reduce the amount of the Letter of Credit to reflect the remaining estimated combined costs of performing its obligations under this Administrative Consent Order and the TCDD Consent Order, or to substitute other financial assurance in a form and manner acceptable to the Department.

C. Oversight Cost Reimbursement

35. Subject to the limitations and reservations of rights contained in this paragraph, Givaudan agrees to reimburse the Department for the Department's reasonable oversight costs incurred in connection with this Administrative Consent Order and the Ground Water Consent Order, by submitting to the Department, within 30 days after receipt by Givaudan of an itemized accounting of such costs, a certified check, drawn to the order of the Treasurer, State of New Jersey in the full amount of such costs. Givaudan agrees to reimburse the Department for all such oversight costs up to \$100,000.00. The Department reserves its right to seek recovery from Givaudan of such oversight costs in excess of \$100,000 and Givaudan reserves its right to contest its obligation to reimburse the Department for any such oversight costs in excess of \$100,000.00.

IV

Force Majeure

36. If any event occurs which Givaudan believes will or may cause delay in the achievement of any deadline prescribed by this Administrative Consent Order, Givaudan shall notify the Department in writing within seven (7) days of the delay or anticipated delay, as appropriate, referencing this paragraph and describing the anticipated length of the delay, the precise cause or causes of the delay, any measures taken or to be taken to minimize the delay and the time required to take any such measures to minimize the delay. Givaudan shall adopt all necessary measures to prevent or minimize any such delay. Givaudan's failure to comply with the notice requirements of this paragraph shall render this force majeure provision void as to the particular incident involved.

37. If the Department finds that any delay or anticipated delay has been or will be caused by fire, flood, riot, strike or other circumstances reasonably beyond the control of Givaudan, the Department shall extend the time for performance hereunder for a period no longer than the delay resulting from such circumstances. If, however, the event causing the delay is found by the Department not to be beyond the control of Givaudan, failure to comply with the provisions of this Administrative Consent Order shall not be excused as provided herein and shall constitute a breach of the requirements of this Administrative Consent Order. The burden of proving that any delay is caused by circumstances beyond the control of Givaudan and the length of any such delay attributable to those circumstances shall rest with Givaudan. Increases in the cost or expenses incurred by Givaudan in fulfilling the requirements of this Administrative Consent Order shall not be a basis for an extension of time. A delay by Givaudan in completing an interim requirement of this Administrative Consent Order shall not automatically extend the time for performance by Givaudan of the remaining requirements of this Administrative Consent Order. If the performance by Givaudan of its obligations under the TCDD Consent Order interferes with the performance by Givaudan of its obligations under this Administrative Consent Order, that interference shall be considered to be an event of force majeure and the provisions of this paragraph shall be applicable.

V

Reservation of Rights

38. This Administrative Consent Order shall be fully enforceable in the New Jersey Superior Court upon the filing of a summary action for compliance pursuant to N.J.S.A. 13:1D-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq.

39. This Administrative Consent Order may be enforced in the same manner as an Administrative Order issued by the Department pursuant to these same statutory authorities.

40. Nothing in this Administrative Consent Order shall constitute a waiver of any statutory right of the Department pertaining to any of the laws of the State of New Jersey, should the Department determine that additional remedial actions are necessary to protect the public health or the environment.

41. In consenting to this Administrative Consent Order and/or by complying with its provisions and requirements, whether directly or through an agent or contractor, Givaudan neither admits nor denies the Findings made herein and admits no liability or responsibility to the Department or to any other party, entity or person. This Administrative Consent Order shall not constitute or be used as evidence of any admission of law or fact against Givaudan.

VI

General Provisions

42. The provisions of this Administrative Consent Order shall be binding on Givaudan, its principals, agents, employees, successors, assigns, tenants and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.

43. No obligations imposed by this Administrative Consent Order (with the exception of paragraph 35) are intended to constitute a debt, claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations imposed by this Administrative Consent Order shall constitute continuing regulatory obligations imposed pursuant to the police powers of the State of New Jersey, intended to protect the public health and the environment.

44. Compliance with the terms of this Administrative Consent Order shall not excuse Givaudan from compliance with all applicable federal and state permits, statutes and regulations while carrying out the obligations imposed by this Administrative Consent Order.

45. Givaudan shall make available to the Department all data and information, including raw sampling and monitoring data, generated pursuant to this Administrative Consent Order.

46. Givaudan shall not construe any informal advice, guidance, suggestions, or comments by the Department, or by persons acting on behalf of the Department, as relieving Givaudan of its obligation to obtain written approvals as may be required herein, unless such advice, guidance, suggestions, or comments by the Department shall be submitted in writing to Givaudan pursuant to paragraph 21.

47. No modification or waiver of this Administrative Consent Order shall be valid except by written amendment to this Administrative Consent Order duly executed by Givaudan and the Department.


48. When this Administrative Consent Order becomes effective, Givaudan waives its right to a hearing on the matters contained herein, pursuant to N.J.S.A. 52:14B-1 et seq. and N.J.S.A. 58:10A-1 et seq.

49. The requirements of this Administrative Consent Order shall be deemed satisfied upon the receipt by Givaudan of written notice from the Department that Givaudan has demonstrated, to the satisfaction of the Department, that all the terms of this Administrative Consent Order have been completed.

50. This Administrative Consent Order shall take effect upon the signature of both parties.

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

3/5/87
DATE


Richard T. Dowling
Commissioner

Witness:

Michael J. Catano

GIVAUDAN CORPORATION

3/5/87
DATE

GFS

Witness:

By _____

NAME HA Brandman

TITLE V.P. - Operations

NAME William

TITLE SR. VICE PRESIDENT

Approved as to Form

R Javroz Date 2/25/87

APPENDIX A

SCOPE OF WORK
REMEDIAL INVESTIGATION
AND
FEASIBILITY STUDY

I. REMEDIAL INVESTIGATION

A. Objectives

1. determine the nature and horizontal and vertical extent of soil, surface water and ground water contamination at and/or emanating from the Site.
2. determine migration paths of contaminants through soil, ground water, surface water, sediment and local potable wells to determine type, extent and physical states of contamination
3. determine impact of the contamination on human health and the environment
4. collect, present and discuss all data necessary to adequately support the development of the feasibility study and the selection of a remedial action alternative that will adequately mitigate the adverse impacts of the contamination on human health and the environment

B. Contents of Remedial Investigation Work Plan

1. a detailed schedule for all remedial investigation activities set forth in this Administrative Consent Order and in this Scope of Work, and a detailed description of how Givaudan will accomplish these tasks.
2. a Site history, including disposal practices and location of all known contaminant sources
3. a health and safety plan, for on-site personnel to minimize their personal injury, illness and potential environmental impairment associated with the site investigation, including:
 - listing of personnel protective equipment (including respiratory protection) and guidelines for their use, including manufacturer, model, duration of safety period, and any required certification documentation
 - listing of safety equipment (including manufacturer, expiration date and model) to be used, such as: fire extinguishers, portable eye wash stations, air monitoring equipment, gamma survey instrument, etc. (equipment shall meet OSHA standards or other acceptable industrial standards)
 - contingency plans for emergency procedures, spill prevention/response, and evacuation plans
 - on-site monitoring for personnel safety (OVL, PVL)
 - criteria for selecting proper level of protection

4. a field sampling plan

- a. specify number and type of samples required to accurately determine the nature and horizontal and vertical extent of soil, surface water and ground water contamination at on and/or emanating from the Site
- b. locate sampling points on a map of the Site
- c. explain the type of data which will be collected and intentions for use of data
- d. specify location (on site map) and depths of proposed soil borings, piezometers, monitoring wells and other sampling points
- e. specify soil, sediment, surface water and ground water analyses including test parameters
- f. document all field sampling collection and analyses with appropriate chain-of-custody procedures

5. a quality assurance/quality control plan

- a. in order to ascertain the reliability of monitoring data for both laboratory and field investigations
- b. include all appropriate information in "Interim Guidelines and Specifications for Preparing Quality Assurance Project Management Plan" (USEPA), "Quality Assurance Project Management Plan" (NJDEP) and Appendix C which is attached hereto and incorporated herein

6. a equipment decontamination plan

- a. drilling equipment, paying particular attention to down hole tools, back of drilling rig and drilling rods
- b. sampling equipment
- c. personnel

C. Site Investigation

1. Soil

- a. obtain drilling permits pursuant to N.J.S.A. 58:4A
- b. install soil borings under direct supervision of a New Jersey licensed well driller and a qualified geologist

- c. decontaminate soil boring and sampling equipment between individual samples and borings according to approved decontamination plan
- d. classify soil according to a standard approved system, e.g., Burmeister, Unified
- e. analyze particle size in laboratory on representative samples to confirm field identification
- f. analyze soil samples to determine presence of contaminants in soil according to approved sampling plan

2. Ground Water

- a. have a qualified hydrogeologist with substantial experience in ground water pollution investigations oversee all site activities
- b. obtain well permits pursuant to N.J.S.A. 58:4A-14 and N.J.A.C. 7:8-3.11
- c. drill all wells under the direct supervision of a New Jersey licensed well driller and a qualified hydrogeologist (see Note 1 below)
- d. install wells in accordance with monitor well specifications in Appendix B
- e. measure static water level monthly

NOTE 1: Improperly constructed monitor wells can compound a contamination problem. Therefore, particular attention shall be given to the details of these specifications. The Department has the authority to shut down a drilling operation which is not adhering to the approved procedures. Data derived from improperly constructed wells shall not be accepted by the Department.

- f. collect split spoon samples, during drilling through overburden, according to ASTM Standard Penetration Methods, ASTM D1 586-67, either continuously or at five-foot intervals, at changes in soil strata, and at all zones which show obvious signs of contamination
- g. retain all soil samples for future reference and/or analysis
- h. survey all well casings to the nearest hundredth (0.01) foot above mean sea level
- i. decontaminate drilling equipment between wells according to the approved decontamination plan

3. Surface water and sediment

- a. collect the following types of samples:
 - i. leachate into any surface waters on or adjacent to the Site
 - ii. instream water and sediment
 - iii. upstream and downstream of the Site
- b. conduct surface water and sediment sampling to determine:
 - i. levels of pollution in the surface water and sediment
 - ii. the degree of pollutant migration by surface runoff, leachate and ground water seepage.
 - iii. rate of pollution due to ground water discharge
 - iv. the ground water/surface water interaction at the Site.

D. Remedial Investigation Report

- 1. all data collected pursuant to the approved sampling plan (see Note 2 below)
 - a. results of all analyses
 - b. details of soil borings
 - c. stratigraphic logs and as-built construction diagrams for each soil boring and monitor well
 - d. well casing elevations
 - e. monthly static water level elevations measured to the nearest hundredth (0.01) foot in each monitor well
- 2. Maps
 - a. site map
 - property boundaries
 - structures and improvements
 - surface water bodies
 - adjacent land use
 - topography indicating two foot contours

- b. sample locations
 - monitor well locations and elevations
 - sample collection locations
 - soil boring locations
 - c. ground water contours
 - d. contaminant plume(s)
3. discussion of data
- a. direction and rate of ground water flow in the aquifer(s), both horizontally and vertically
 - b. levels of surface water and ground water contamination as compared to surface water and ground water quality standards, where pertinent, or background levels (for the purpose of this discussion, "background levels" are defined as representative results of ground water analyses up gradient of the site or beyond a hydrologic boundary)
 - c. nature and extent of ground water contamination in the aquifer(s), both horizontally and vertically
 - d. contaminant behavior, stability, biological and chemical degradation, mobility
 - e. projected rate of contamination movement
 - f. identification of contamination sources
4. recommendations for additional investigations
5. assessment of impact of contamination on human health and the environment

NOTE 2: The Department may require additional investigation activities based on its review of remedial investigation report

II. FEASIBILITY STUDY

A. Objectives

- 1. identify and evaluate all potentially viable remedial action alternatives for the contamination at and/or emanating from the Site
- 2. recommend the remedial action alternative best suited to:

- b. sample locations
 - monitor well locations and elevations
 - sample collection locations
 - soil boring locations
 - c. ground water contours
 - d. contaminant plume(s)
3. discussion of data
- a. direction and rate of ground water flow in the aquifer both horizontally and vertically
 - b. levels of surface water and ground water contamination compared to surface water and ground water quality standards where pertinent, or background levels (for the purpose of this discussion, "background levels" are defined as representative results of ground water analyses up gradient of the site or beyond a hydrologic boundary)
 - c. nature and extent of ground water contamination in the aquifer(s), both horizontally and vertically
 - d. contaminant behavior, stability, biological and chemical degradation, mobility
 - e. projected rate of contamination movement
 - f. identification of contamination sources
4. recommendations for additional investigations
5. assessment of impact of contamination on human health and the environment

NOTE 2: The Department may require additional investigation activities based on its review of remedial investigation report

II. FEASIBILITY STUDY

A. Objectives

- 1. identify and evaluate all potentially viable remedial alternatives for the contamination at and/or emanating from the Site
- 2. recommend the remedial action alternative best suited to:

- a. achieve and maintain applicable surface water and ground water quality standards; and
- b. return the site to background conditions

B. Identification of Remedial Alternatives

- 1. develop alternatives to incorporate remedial technologies, response objectives and criteria, and other appropriate considerations into a comprehensive, site-specific approach
 - 2. consider all appropriate remedial alternatives
 - 3. screen all potentially viable remedial action alternatives to narrow the list of potential alternatives for further detailed analysis, according to the following:
 - a. environmental and public health impacts
 - b. engineering feasibility and reliability
 - c. cost, including operation and maintenance costs
 - 4. evaluate the limited number of alternatives that remain after the initial screening according to the following:
 - a. describe appropriate treatment and disposal technologies, as well as any permanent facilities required
 - b. specify engineering considerations required to implement the alternative (e.g., treatability study, pilot treatment facility, additional studies needed to proceed with final remedial design)
 - c. describe environmental and public health impacts and propose methods for mitigating any adverse effects
 - d. operation and maintenance/monitoring requirements of the completed remedy
 - e. off-site disposal needs and transportation plans
 - f. temporary storage requirements
 - g. requirements for health and safety plans during remedial implementation (including both on-site and off-site health and safety considerations)
- ... or in steps resulting in a functional phase of the overall remedy

- i. describe how the alternative could be segmented into areas to allow implementation of differing phases of the alternative
- j. a review, provided by the Department of any off-site storage, treatment or disposal facility to ensure compliance with applicable hazardous waste regulatory requirements
- k. describe which federal, state and local permits would be necessary for each alternative identified and the information necessary for the development of each of the permits
- l. time required for implementation, including interim dates of significance

C. Evaluation of Alternatives

- 1. evaluate and present the alternative remedies identified in Part B above and recommend the most environmentally sound alternative(s)
 - a. develop a health and environmental assessment
 - i. evaluate each alternative considering environmental fate, exposure and associated health and environmental effects
 - ii. analyze mitigating adverse effects, and physical or legal constraints
 - b. develop a cost evaluation for each remedial action alternative, and for each phase or segment of the alternative
 - i. present the cost as a present-worth cost
 - ii. include total cost of implementing the alternative including the annual operation and maintenance costs of the alternative for the full duration of the alternative
 - c. evaluate each alternative in accordance with the criteria established in Part A above
 - i. apply the evaluation criteria uniformly to each alternative
 - ii. identify a number of remedial alternatives that are comparable
 - iii. identify the most appropriate alternative, given the specific constraints of the project
 - iv. prepare a trade-off matrix that enables identification of now comparable techniques including

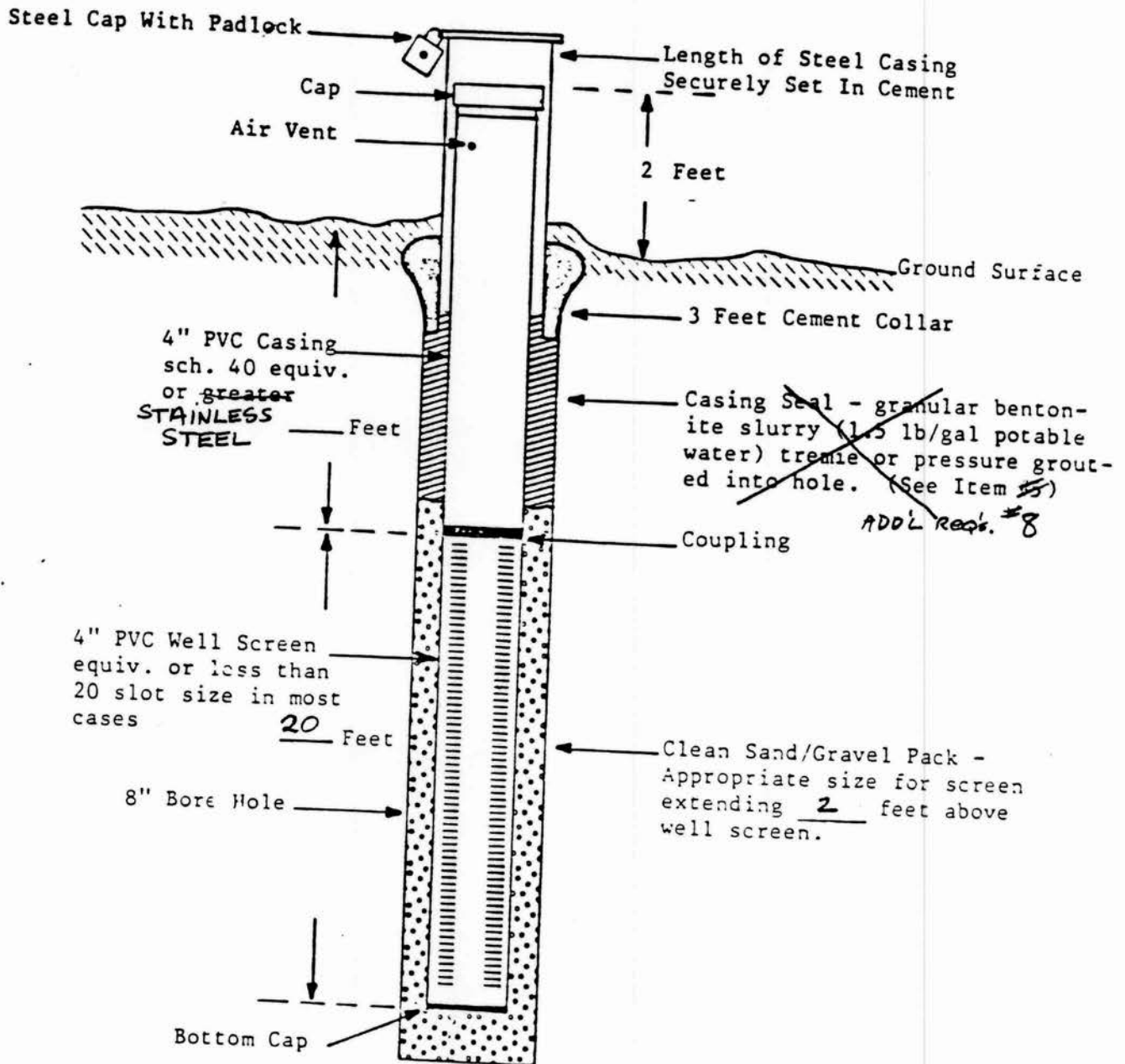
- level of cleanup achievable
 - time to achieve cleanup
 - feasibility
 - implementability
 - reliability
 - ability to minimize adverse impacts during action
 - ability to minimize off-site impacts caused by action
 - remoteness of activities
 - useability of ground water
 - useability of surface water
 - useability of site
- d. recommend the alternative that is the most environmentally sound resulting from Sections II. C.1.b. and C.1.c.
- i. prepare rationale for recommending the selected alternative stating the advantages over other alternatives considered
 - ii. a conceptual design of the recommended alternative should be included, providing, as a minimum, the following information:
 - the selected engineering approach with implementation schedule
 - any special implementation requirements
 - applicable design criteria
 - preliminary site layouts
 - budget cost estimates including
 - operation and maintenance requirements
 - safety plan, including costs

APPENDIX B

Monitor Well
Installation Specifications

New Jersey Department of Environmental Protection Unconsolidated Monitor Well Specifications*

Site Name: GIVAUDAN CORP.
Location: CLIFTON
Date: 2 APR 85



REQUIREMENTS:

1. Notification to the NJDEP is required two (2) weeks prior to drilling.
2. State well permits are required for each monitor well constructed by the driller. Report "use of well" on well permit application. Permit number must be permanently affixed to each monitor well. NOTE: Well driller must be licensed in the State of New Jersey.

NOT TO SCALE

OVER PLEASE

3. The borehole must be a minimum of four (4) inches greater than the casing diameter.
4. Wells must be gravel packed unless noted otherwise in Additional Requirement #8.
5. Approved high grade sodium base, well sealant type, granular bentonite must be used to seal casing. Casing sealant and drilling fluids must be mixed with potable water.
6. All wells must be developed upon completion for a minimum of one (1) hour or to yield a turbid-free discharge.
7. The driller must maintain an accurate written log of all materials encountered in each hole, record all construction details for each well, the static water levels, and any tidal fluctuations (when applicable). This information must be submitted to the Office of Water Allocation as required by N.J.S.A. 58:4A.
8. If low level organic compounds are to be sampled for, only threaded or press joints (no glue joints) are acceptable for PVC.
9. A length of steel casing with a locking cap must be securely set in cement a minimum of three (3) feet below ground surface.
10. Top of casing (excluding cap) must be surveyed to the nearest hundredth foot (0.01) by a licensed surveyor. The casing must be permanently marked at the point surveyed. The well(s) should be numbered clearly on the casing. A detailed site map with the well locations and casing elevations must be submitted to HARVEY MCKENZIE.

NJGS

11. NOTICE IS HEREBY GIVEN OF THE FOLLOWING:

- a. Review by the Department of well locations and depths is limited solely to review for compliance with the law and Department rules;
- b. The Department does not review well locations or depths to ascertain the presence of, nor the potential for, damage to any pipeline, cable or other structure;
- c. The permittee (applicant) is solely responsible for safety and adequacy of the design and construction of wells required to be constructed by the Department;
- d. The permittee (applicant) is solely responsible for any harm or damage to person or property which results from the construction or maintenance of any well; this provision is not intended to relieve third parties of any liabilities or responsibilities which are legally theirs.

ADDITIONAL REQUIREMENTS (IF CHECKED):

- ☒ 1. Top of screen set 5 feet above below water table.
- ☒ 2. Split Spoon Samples CONTINUOUSLY OR AT 5' INTERVALS AS IN LITHOLOGY,
- ☒ 3. Dedicated Bailer (Sampler) in Well(s) LAB CLEANED.
- ☒ 4. Threaded or Press Joints _____
- ☐ 5. Five (5) Foot Casing Tailpiece Below Screen _____
- ☐ 6. Centralizers On Screen _____
- ☐ 7. Borehole Geophysical Log(s) _____
- ☐ 8. Other CEMENT BENTONITE CASING NO REVERT NO FLUID SEAL

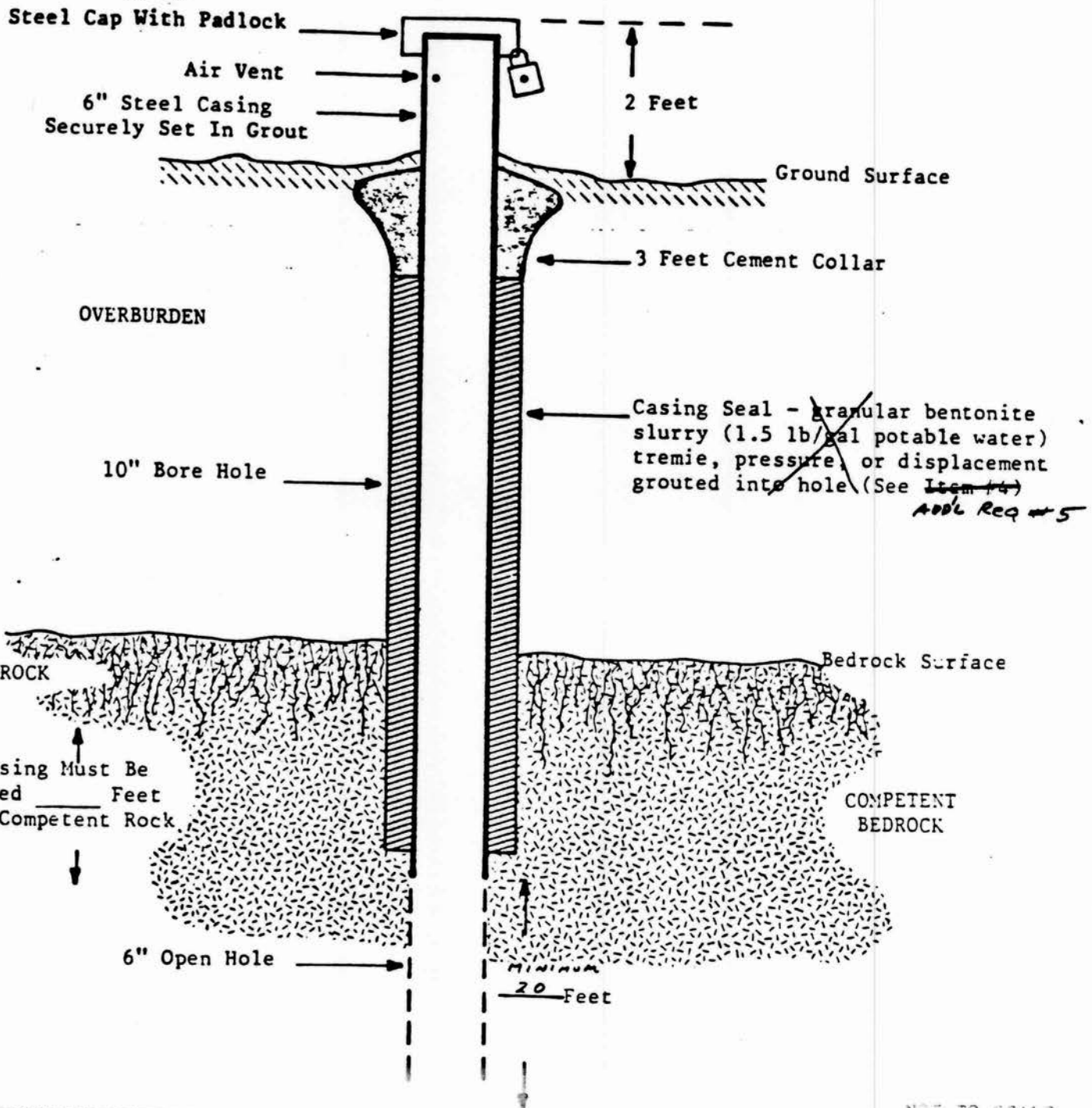
* OTHER MATERIALS, DESIGNS AND CASING DIAMETERS MAY BE USED WITH PRIOR APPROVAL BY THE NJDEP.

New Jersey Department of Environmental Protection Rock Monitor Well Specifications*

Site Name: GIVAUDAN CORP.

Location: CLIFTON

Date: 2 APR 85



NOT TO SCALE

REQUIREMENTS:

1. Notification to the NJDEP is required two (2) weeks prior to drilling.
2. State well permits are required for each monitor well constructed by the driller. Report "use of well" on well permit application. Permit number must be permanently affixed to each monitor well. NOTE: Well driller must be licensed in the State of New Jersey.

3. Oversize borehole, minimum four (4) inches greater than casing diameter drilled through overburden with casing sealed ten (10) feet into competent rock unless shown otherwise above.
4. Approved high grade, sodium base, well-sealant type, granular bentonite must be used to seal casing. Casing sealant and drilling fluids must be mixed with potable water.
5. Well must be developed upon completion for a minimum of one (1) hour or to yield a turbid-free discharge.
6. The driller must maintain an accurate written log of all materials encountered in each hole, record all construction details for each well, and record the depth of major water bearing fracture zones. This information must be submitted to the Office of Water Allocation as required by N.J.S.A. 58:4A.
7. Cement collar must be installed a minimum of one (1) hour after casing seal has been emplaced.
8. Locking caps must be provided to secure each well.
9. Top of each well casing (excluding cap) must be surveyed to the nearest hundredth foot (0.01) by a licensed surveyor. The casing must be permanently marked at the point surveyed. The well should be numbered clearly on the casing. A detailed site map with well locations and casing elevations must be submitted to MCKENZIE, NJGS HARVEY

10. NOTICE IS HEREBY GIVEN OF THE FOLLOWING:

- a. Review by the Department of well locations and depths is limited solely to review for compliance with the law and Department rules;
- b. The Department does not review well locations or depths to ascertain the presence of, nor the potential for, damage to any pipeline, cable or other structures;
- c. The permittee (applicant) is solely responsible for safety and adequacy of the design and construction of well required to be constructed by the Department;
- d. The permittee (applicant) is solely responsible for any harm or damage to person or property which results from the construction or maintenance of any well; this provision is not intended to relieve third parties of any liabilities or responsibilities which are legally theirs.

ADDITIONAL REQUIREMENTS (IF CHECKED):

- ☒ 1. Split Spoon Samples (In Overburden) 5' INTERVALS, D'S IN LITHOLOGY, OBVIOUS CONTAMINATION
- ☐ 2. Rock Core Samples _____
- ☒ 3. Dedicated Bailer (Sampler) In Well(s) LAB CLEANED
- ☐ 4. Borehole Geophysical Log(s) _____
- ☒ 5. Other CEMENT/BENTONITE GROUT
NO REVERT, NO QUICK-SET

* OTHER DRILLING METHODS, MATERIALS, DESIGNS AND CASING DIAMETERS MAY BE USED WITH PRIOR APPROVAL BY NJDEP.

APPENDIX C

Quality Assurance
and
Quality Control

QUALITY ASSURANCE DELIVERABLE REQUIREMENTS

There are three parts to this Appendix. The first part outlines, according to sample/data type, frequency and use, the approximate percentage of samples for which the Tier I and Tier II quality assurance deliverables are required. The second part is a copy of the Tier I Quality Assurance Deliverable Requirements. The third part is a copy of the Tier II Quality Assurance Deliverable Requirements.

CRITERIA FOR QUALITY ASSURANCE DELIVERABLE REQUIREMENTS

	<u>TIER I</u>	<u>TIER II</u>
A. <u>Remedial Investigation:</u>		
1. initial RI phase	100%	
2. subsequent RI phases	10%, or minimum of one monitor well, or one sample per sampling event	90%
B. <u>Remedial Action:</u>		
1. monitoring of decontamination effectiveness		
a. initial sampling	100%	
b. subsequent sampling	25%	75%
2. sampling to support proposal to terminate decontamination system	100%	
3. post cleanup/removal soil sampling to determine if any additional cleanup/removal is required	100%	
C. <u>Other Site Specific Considerations:</u>		
1. <u>potable water</u>		
a. initial sampling	100%	
b. subsequent sampling	25%	75%

[Include copy of Tier I and Tier II Quality Assurance Deliverable Requirements documents after this page]

New Jersey Department of Environmental Protection
Division of Waste Management
Tier I Quality Assurance and
Generalized Reporting Format Deliverable Requirements

GENERALIZED REPORTING FORMAT PACKAGE

The elements of data reporting required in the Final Data Report must be reported and delivered to NJDEP-DWM for each environmental and waste sample submitted. It is understood data reporting format for particular laboratories may vary due to problems with software compatibility. The document that follows is a generalized data reporting format that includes each item required. The submitting laboratory may alter the reporting format to make it compatible with their computer systems; however, the substantive data required to meet the intent of this package shall not change. Three copies of the Final Data Report must be submitted. The data may be used by NJDEP in civil and/or criminal litigation, therefore the strictest adherence to chain of custody protocol, document control, and quality assured procedures is required. The Submitting laboratory must obtain approval of their specific reporting format from NJDEP prior to initiation of measurements. The contract laboratory is required to furnish NJDEP-DWM and the prime contractor a weekly progress report on sample status. The laboratory must adhere to a 40 day turnaround time from date of sample receipt.

All reference to a specific IFB document shall be that specific document or a more recent officially issued revision. Earlier editions of the specific IFB stated within this document shall not be used.

The hierarchy of deliverable requirements to which a laboratory will be held is:

1. Specific contractual agreements and Generalized Reporting Package.
2. Official analytical methodology.
3. Laboratory SOP.

OCTOBER, 1985

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- II. REPORTING REQUIREMENTS AND DELIVERABLES FOR ORGANICS:
VOLATILES, ACID AND BASE/NEUTRAL EXTRACTABLES
- III. REPORTING REQUIREMENTS AND DELIVERABLES FOR ORGANICS:
PESTICIDES AND PCB's
- IV. REPORTING REQUIREMENTS AND DELIVERABLES:
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- V. REPORTING REQUIREMENTS AND DELIVERABLES:
2, 3, 7, 8 - TCDD (DIOXIN)

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1. G-1: Title Page
2. G-2: Sample Analysis Request Form
3. G-3: Chain of Custody Record
4. G-4: Chain of Custody Record
5. G-5: Laboratory Chronicle
6. G-6: Methodology Summary
7. O-1: Targeted Analyte - Summary of Quantitative Results
8. O-2: Water Matrix Spike/Matrix Spike Duplicate Recovery
9. O-3: Soil Matrix Spike/Matrix Spike Duplicate Recovery
10. O-4: GC/MS Tune Summary: Volatile Organics
11. O-5: GC/MS Tune Summary: Extractable Organics
12. O-6: Initial Calibration Data: Volatile Organics
13. O-7: Initial Calibration Data: Extractable Organics
14. O-8: Continuing Calibration Check: Volatile Organics
15. O-9: Continuing Calibration Check: Extractable Organics
16. O-10: GC/MS Surrogate Recovery Data
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through
O-13: Non-Targeted Analyte Summary
18. P-1: Pesticide/PCB Standard Summary
19. P-2: Pesticide/PCB Identification
20. M-1: Analytical Results and Quality Assurance Data: Metals
21. M-2: Initial and Continuing Calibration Verification: Metals
22. M-3: ICP Interference Check Sample Summary
23. M-4: Method of Standard Addition Results

- 24. D-1: 2, 3, 7, 8 - TCDD Data Report Form
- 25. D-2: 2, 3, 7, 8 - TCDD Partial Scan Conformation
- 26. D-3: 2, 3, 7, 8 - TCDD Initial Calibration Summary
- 27. D-4: 2, 3, 7, 8 - TCDD Continuing Calibration Summary